REMARKS

Favorable reconsideration of this application, in view of the present amendments and in light of the following discussion, is respectfully requested.

After entry of this amendment, Claims 9-21 are pending. Claims 10-11, 14, 17-20 are cosmetically amended to address potential informalities, and Claim 21 is newly added. No new matter is introduced.

In the outstanding Office Action, Claim 9 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Feld (U.S. Patent No. 6, 281,755) in view of the background; Claims 10-11 and 17-18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Feld, Kaczynski (U.S. Patent Application Publication No. 2007/0111684) and the background; Claims 12-13 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Feld, Shohara (U.S. Patent Application Publication No. 2005/0078743) and Wilhelmsson (U.S. Patent Application Publication No. 2007/0211831) and the background; Claim 14 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Kasuga (U.S. Patent No. 4,524,422) in view of the background; Claims 15-16 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Feld and Kasuga and the background; and Claims 19-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Kasuga, Shohara and Wilhelmsson in view of the background.

At the outset, Applicants noted that MPEP § 707.07(f) provides,

> In order to provide a complete application file history and to enhance the clarity of the prosecution history record, an examiner must provide clear explanations of all actions taken by the examiner during prosecution of an application.
>
> Where the applicant traverses any rejection, the examiner should, if he or she repeats the rejection, take note of the applicant's argument and answer the substance of it. (Emphasis added.)

The outstanding Office Action, however, maintains the rejections first presented in the Office Action of January 14, 2010 without specifically addressing every argument in Applicant's response filed March 12, 2010. Therefore, it is respectfully requested that in a future communication, the Office respond to every point raised in Applicant's responses.

With respect to the rejection of Claim 9 as being unpatentable over Feld in view of the background, this rejection is respectfully traversed.

Claim 9 recites a wide-band amplifier comprising:

> an input terminal configured to receive an input voltage;
>
> an output terminal configured to provide an amplified output voltage;
>
> an amplification device connected in series between the input terminal and the output terminal, an output of the amplification device being directly connected to the output terminal;
>
> an LC parallel resonant circuit connected between the output terminal and a ground terminal in parallel to the amplification device; and
>
> an LCR series resonant circuit connected between the output terminal and the ground terminal in parallel to the amplification device and the LC parallel resonant circuit.

As noted in previous responses, the background merely describes a wide-band amplifier that includes and inductor, capacitor and resistor connector in parallel to an amplification device.[1] The outstanding Office Action, however, acknowledges that the background does not describe a LCR series resonant circuit connected between the output terminal and a ground terminal of the wide-band amplifier.[2] Therefore, the outstanding Office Action cites Feld to cure this deficiency.

Feld generally describes a high-frequency power amplifier that feeds an antenna of a nuclear resonance tomography apparatus.[3] Feld describes that the power amplifier includes

[1] *See* paragraph [0010] and Figure 8.
[2] *See* the outstanding Office Action at page 3.
[3] Feld at column 1, lines 5-10.

an amplifier state (2) coupled to a high-frequency load (G_L) via a matching network (8).[4] The matching network (8) includes a parallel resonant circuit (20) connected in parallel to the output of the amplifier stage (2), and a series resonant circuit (22) connected *in series between the output of the amplifier stage (2) and the high-frequency load (G_L)*.[5] Further, Feld describes that the amplifier stage (2) operates in two separate, *narrow* frequency bands, and that the matching network (8) transforms the high-frequency impedance (G_L) into a lower impedance (G'_L) to ensure maximum peak power delivery by the amplifier stage (2).[6] Thus, Feld describes that the matching network (8), which includes the parallel resonant circuit (20) and the series resonant circuit (22), works to match the output impedance of the amplifier stage (2) to the antenna load (G_L).

However, Feld does not describe that the series resonant circuit (22) is connected in parallel to the output of the amplifier stage (2) as alleged in the outstanding Office Action. Instead, Feld very clearly illustrates that the series resonant circuit (22) is connected in series between the amplifier stage (2) and the high-frequency antenna, represented by the high-frequency load (G_L).[7] Further, Feld requires that the series resonant circuit (22) be connected in series between the amplifier stage (2) and the high-frequency load (G_L) in order to both *match the output impedance of the amplifier stage (2) to the high-frequency load (G_L) and to provide DC voltage separation from the high-frequency load (G_L)*.[8]

The outstanding Office Action, however, largely ignores the above descriptions in Feld, and instead asserts that the series resonant circuit (22) and the load (G_L) described in Feld somehow correspond to the claimed LCR circuit. However, as noted above, Feld requires that the series resonant circuit (22) be connected between the output of the amplifier stage and the high-frequency antenna load. Therefore, the outstanding Office Action errs in

[4] Feld at column 5, lines 20-30; see also Figure 2.
[5] Feld at column 6, lines 45-52; see also Figure 5.
[6] Feld at column 5, lines 5-10 and lines 45-55.
[7] *See* Figure 5 of Feld.
[8] Feld at column 5, lines 19-55 and column 7, lines 44-47.

modifying the matching network (8) of Feld to combine the series resonant circuit (22) with the background as such a combination would render the matching network (8) of Feld unsatisfactory for its intended purpose. Specifically, the modifications proposed by the outstanding Office Action would render the matching network (8) unable to match the impedance of the amplifier stage (2) to the high-frequency antenna load (G_L). In this regard, MPEP § 2145 provides that:

> In addition to the material below, see **MPEP §2141.02** (prior art must be considered in its entirety, including disclosures that teach away from the claims) and **MPEP §2143.01** (proposed modification cannot render the prior art unsatisfactory for its intended purpose or change the principle of operation of a reference.

As the modifications proposed in the outstanding Office Action would render the matching network (8) described in Feld unsatisfactory for the purpose of matching the impedance of the output stage (2) to the high-frequency antenna load (G_L), the combination of Fled and the background is improper and should be withdrawn.

Furthermore, as noted in a previous response, Feld teaches away from combination with the background insofar as Feld describes a narrow-band amplifier where the matching network (8) is **incapable of maintaining the correct impedance match for a continuous frequency range**.[9] As the Office is well aware,

> "A reference may be said to teach away when a person of ordinary skill in the art, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Gurley*, 31 U.S.P.Q.2d 1130, 1131 Fed. Cir. 1994). To this end, "disclosures in the references that diverge from and teach away from the invention cannot be disregarded", Phillips Petroleum Company v. U.S. Steel Corp., 9 U.S.P.Q.2d 1461 (Fed. Cir. 1989).

[9] Feld at column 3, lines 30-42.

Thus, one of ordinary skill in the art would clearly be discouraged from combining the background with the impedance matching network (8) of Feld because Feld describes the impedance matching network (8) as being suitable only for narrow-band amplifiers.[10]

The outstanding Office Action appears to largely ignore these descriptions in Feld, and. However, as noted above, disclosures in the reference that diverge from and teach away from the invention cannot be disregarded. Therefore, the combination of the background with Feld is improper for this additional reason.

Accordingly, it is submitted that Claim 9, and any claim depending therefrom, is in condition for allowance. Therefore, it is respectfully requested that the rejection of Claim 9 under 35 U.S.C. § 103(a) be withdrawn.

Should, however, the rejection of Claim 9 be maintained in a future communication, it is respectfully requested that the Office provide an explanation of the rejection specifically addressing the points raised above as required by MPEP § 707.07(f).

With regard to the rejection of Claim 14 as being unpatentable over the background in view of Kasuga, this rejection is also respectfully traversed.

> Claim 14 is directed to a wide-band amplifier that includes:
>
> an input terminal configured to receive an input voltage;
>
> an output terminal configured to provide an output voltage;
>
> an amplification device connected in series between the input terminal and the output terminal, and output of the amplification device being directly connected to the output terminal; and
>
> an analog band-pass filter connected between the output terminal and a ground terminal in parallel to the amplification device, the analog band-pass filter having a plurality of poles provided on a left side of an s-plane and a plurality of zeros arranged between the poles, at least two zeros being arranged at locations other than an origin of the s-plane.

[10] Feld at column 3, lines 30-42.

As discussed previously, and acknowledged in the outstanding Office Action, the background does not describe the claimed analog band-pass filter.[11] Therefore, the outstanding Office Action cites Kasuga as allegedly describing this feature.

Kasuga describes a digital equalizer having poles and zeros arbitrarily arranged around a circle whose radius is the center angular frequency of a desired filter characteristic.[12] However, as noted in previous responses, Kasuga does not describe an analog filter. Instead, Kasuga describes digital filters. Thus Applicants are at a loss to understand how Kasuga is being applied to remedy the deficiencies in the background.

In fact, any combination of the background in Kasuga requires modification of the background to include a digital filter to implement the desired filter characteristic, and **fundamentally changes the principle of operation** of the background from one of an analog filter to one of a digital filter. As the Office is no doubt aware, however,

> If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

The proposed combination would require significant modification of the analog circuit illustrated in Figure 8 of the background to include at least those digital components illustrated in Figure 9 of Kasuga, and accordingly change the principle of operation of the background circuit from an analog circuit to a digital one. As such, the proposed combination is improper and should be withdrawn. Accordingly, Claim 14 is believed to be in condition for allowance, and therefore, it is respectfully requested that the rejection of Claim 14 under 35 U.S.C. § 103(a) be withdrawn.

As all other rejections of record rely upon Feld and/or Kasuga for describing the above-distinguished features, and the above-distinguished features are not disclosed or

[11] See the outstanding Office Action at page 8.
[12] Kasuga at column 1, lines 43-50.

suggested by Feld or Kasuga, alone, in combination or in combination with any other art of record, it is respectfully submitted that a *prima facia* case of obviousness cannot be maintained. Accordingly, it is respectfully requested that the rejection of Claims 10-13 and 15-20 under 35 U.S.C. § 103(a) be withdrawn.

Further, new Claim 21 presents features not disclosed in any art of record, and is therefore believed to be in condition for allowance.

For the reasons discussed above, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal allowance. Therefore, a Notice of Allowance for Claims 9-21 is earnestly solicited.

Respectfully submitted,

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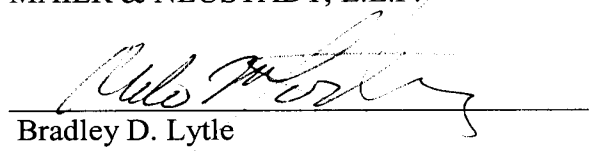

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